

# LINEARlight Flex

OS-LM11A



## Benefits

- Linear separable LED strip on flexible printed circuit board with self-adhesive back
- Small height
- Available in various colors

## Applications

- Illuminated signs
- Channel letters
- Path & contour marking

## Technical Operating Data

Product	Color	Number of LEDs	Voltage [V DC]*	Power [W]*	Current [A]*	Radiance Angle [°]*	Wavelength [nm] Color Temp [K]*	Lum. Flux [lm]*
OS-LM11A-W1-865	white	300	10	30,0	3	120	6500 K	405
OS-LM11A-W1-854	white	300	10	30,0	3	120	5400 K	405
OS-LM11A-W1-847	white	300	10	30,0	3	120	4700 K	405
OS-LM11A-A	red	300	10	15,0	1,5	120	615 nm	117
OS-LM11A-Y1	yellow	300	10	22,5	2,25	120	587 nm	405
OS-LM11A-T	green	300	10	30,0	3	120	528 nm	147
OS-LM11A-B	blue	300	10	30,0	3	120	470 nm	37

\*) All Data are related to the entire module

Due to the special conditions of the manufacturing processes of LED the typical data of technical parameters can only reflect statistical figures and do not necessarily correspond to the actual parameters of each single product which could differ from the typical data.

## Technical Features

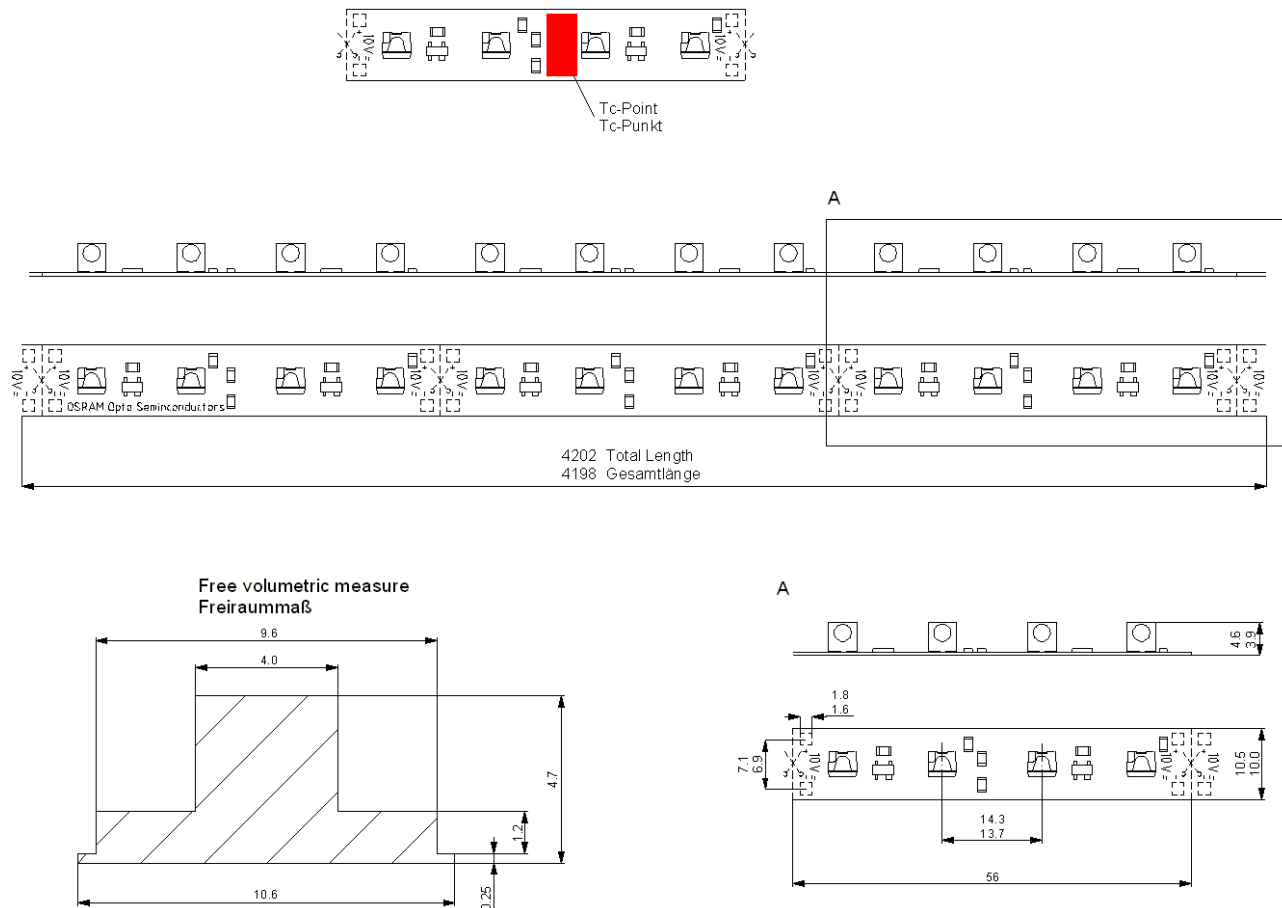
- Modules optimized for use with OSRAM OPTOTRONIC power supplies.
- Dimmable by Pulse width modulation (PWM) with the electronic controller OT DIM
- Smallest unit of 4 LEDs can be cut out at regular intervals without damaging the rest of the module
- Entire Module consists of 300 LEDs
- Size of PCB ( LxWxH): 4200 mm x 10 mm x 5 mm
- Size of smallest unit 4 LED (LxW): 56 mm x 10 mm
- Wide viewing angle enables homogeneously illuminated surfaces

## Minimum and Maximum Ratings

Product	Operating Temperature at Tc-Point [ °C ] *	Storage Temperature [ °C ] *	Voltage Range [ V dc ] *	Reverse Voltage [ V dc ] *
OS-LM11A-W1-865	-30 ... 70	-40 ... 85	10 ... 11	11
OS-LM11A-W1-854	-30 ... 70	-40 ... 85	10 ... 11	11
OS-LM11A-W1-847	-30 ... 70	-40 ... 85	10 ... 11	11
OS-LM11A-A	-30 ... 80	-40 ... 85	10 ... 11	11
OS-LM11A-Y1	-30 ... 80	-40 ... 85	10 ... 11	11
OS-LM11A-T	-30 ... 70	-40 ... 85	10 ... 11	11
OS-LM11A-B	-30 ... 70	-40 ... 85	10 ... 11	11

\*) Exceeding maximum ratings for operation and storage temperature will reduce expected life time or destroy the LED Module.  
Exceeding maximum ratings for operation voltage will cause hazardous overload and will likely destroy the LED Module.  
The temperature of the LED module needs to be measured at the Tc-point according to EN60598-1 in a thermally constant status with a temperature sensor or a temperature sensitive label (available e.g. at RS-Components). For exact location of the Tc-point see drawing below.

## Drawing



## Safety Information

- The LED module itself and all its components may not be mechanical stressed.
- Assembly must not damage or destroy conducting paths on the circuit board.

The LED Module incorporates no protection against short circuits, overload or overheating. Therefore it is absolutely necessary to operate the modules with a electronically stabilised power supply offering protection against the above mentioned safety risks. For dimming applications attention should be paid to specific references in "OPTOTRONIC Technical Guide".

**OSRAM OPTOTRONIC power supplies are specifically designed with protection features for safe operation.**

When using power supplies other than OPTOTRONIC the following basic safety features are required, in addition to any other application specific concerns and local safety codes:

- Short circuit protection
  - Overload protection
  - Overheat protection
  - Correct output voltage, including consideration for ripple and spikes.
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- Installation of LED modules (with power supplies) needs to be made with regard to all applicable electrical and safety standards. Only qualified personnel should be allowed to perform installations.
  - Correct electrical polarity needs to be observed. Wrong polarity will result in no light emission.
  - Serial connection is highly recommended as safe electrical operation mode. Parallel connection is not recommended. Unbalanced voltage drop can cause hazardous overload and damage the LED module.
  - Please ensure that the power supply is of adequate power to operate the total load.
  - When mounting on metallic or otherwise conductive surfaces, there needs to be a electrical isolation at soldering points between module and the mounting surface.
  - The maximum length of LINEARlight Flex OS-LM11 is 2072 mm for green, blue, white and yellow and 4200 mm for red with a two pole power feed at one end. The complete module 4200 mm can be operated with a two pole power feed in the middle of the module or from both ends.
  - Pay attention to standard ESD precautions when installing the module.
  - The module, as manufactured, has no conformal coating and therefore offers no inherent protection against corrosion. The ability to customize the length of the module by cutting at specifically marked points is a key feature of the product and hence the reason for no factory installed conformal coating. For these reasons, it is recommended that the user complete all module modifications first ( cutting, wiring) and then apply a conformal coating in the final stages of installation.
  - Damage by corrosion will not be honored as a materials defect claim. It is the user's responsibility to provide suitable protection against corrosive agents such as moisture and condensation and other harmful elements.
  - For applications involving exposure to humidity and dust the module must be protected by a fixture or housing with a suitable protection class. The module can be protected against condensation water by treatment with an appropriate circuit board grade conformal coating. The conformal coating should have the following features:
    - Optical transparency
    - UV-resistance
    - thermal expansion matching the thermal expansion of the module  $15\text{-}30 \cdot 10^{-6} \text{ cm/cm/K}$
    - low permeability of steam for all climatic conditions
    - resistance against corrosive environmentThe lacquer APL of the company Electrolube <http://www.electrolube.com> met the conditions for the LINEARlight Flex in our tests.

## Assembly Information

- Solder connections should only be performed on designated solder pads ( marked "10V +/-"). During soldering, do not exceed the maximum soldering time of 10 seconds and the maximum soldering temperature of 260°C.
- The smallest unit (56 mm- 4 LEDs) can be removed by cutting with scissors between the designated solder pads.
- The mounting of the module is facilitated by means of the double-sided adhesive on the back-surface of the module. Care must be taken to provide a clean and dry mounting surface, free of oils or silicone coatings as well as dirt particle. The mounting substrate must have sufficient structural integrity. Take care to completely remove the adhesive backing. Once the module is appropriately positioned, press on the module with about 20N/cm<sup>2</sup> ( refer to application techniques of 3M adhesive transfer tapes).
- The minimum bending radius is 2 cm. The module may be bent over a smaller radius but only in regions of the circuit board containing no electronic components and such bends should be made once and fixed in position to avoid cyclic fatigue.
- The thermal length expansion coefficient of the modul is  $17 \cdot 10^{-6} \text{cm/cm/K}$ . When installing in enviroments with large variations in temperature ( e.g. outdoor applications) and operating length of more than 2 m, the use of metallic mounting surfaces is necessary. Otherwise it is advisable to use an additional thicker adhesive tape to absorb the stress of any mismatch in expansion coefficients.

## Ordering Guide

Productgroup	Productname	EAN *	S-Unit *
LINEARlight Flex	OS-LM11A-W1-865	4050300873879	8
LINEARlight Flex	OS-LM11A-W1-854	4050300817217	8
LINEARlight Flex	OS-LM11A-W1-847	4050300817194	8
LINEARlight Flex	OS-LM11A-A	-	
LINEARlight Flex	OS-LM11A-Y1	4050300946016	8
LINEARlight Flex	OS-LM11A-T	-	
LINEARlight Flex	OS-LM11A-B	-	

\*) EAN: Ordering number per single module  
S-Unit: Modules per shipping unit

Note: Typical performance data are subject to change without any further notice, particularly as LED technology evolves.

## Sales and Technical Support

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## Related and Further Information

- New creativity in lighting design  
LED Modules for illuminated signs 153 S07 E
- The new dimension of light 53 S006 GB
- OPTOTRONIC Technical Guide 130 T08 E
- OPTOTRONIC Data Sheets [www.osram.com](http://www.osram.com)